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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/596,781

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Joachim Kroos

KROOS

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EXAMINER

KERNS, KEVIN P

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

11/19/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@FEIEREISENLLC.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/596,781	<b>Applicant(s)</b> KROOS ET AL.	
	<b>Examiner</b> Kevin P. Kerns	<b>Art Unit</b> 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-17 and 19-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-17 and 19-25 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 24 is objected to because of the following informalities: in the 1<sup>st</sup> line of the “conditioning” step (as amended), replace “topside” with “top side” for clarity.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 2-17 and 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spitzer et al. (“Direct Strip Casting (DSC) – An Option for the

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Production of New Steel Grades” – provided by applicants in the IDS dated March 20, 2007) in view of Sivilotti et al. (US 6,755,236).

Regarding independent claim 24, Spitzer et al. disclose a method of making a hot strip in a direct strip casting (DSC) apparatus (pages 724-731), in which the method comprises the steps of feeding a molten steel melt onto a strip casting unit via horizontal casting to obtain a pre-strip with a cast thickness of between 6-15 mm (page 724), and transferring the pre-strip for further processing, in which the strip has a composition of carbon of less than 1%, Al between 1-8%, Mn between 10-30%, and Si between 1-6% (page 727). Regarding the claimed ranges of carbon, Al, Mn, and Si, these elemental compositions are encompassed by comparatively broader and/or overlapping ranges disclosed by Spitzer et al. MPEP 2131.03 states, "When, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is 'anticipated' if *one* of them is in the prior art." *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). "When the prior art discloses the range which touches or overlaps the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation." See MPEP 2131.03.

Regarding independent claim 24 (and to the degree that one of ordinary skill in the art would not recognize the claimed compositions to be "inherent" under 35 USC 102(b) above), one of ordinary skill in the art would have recognized the obviousness of the claimed ranges in view of Spitzer et al., as set forth in MPEP 2144.05. "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists." *In re Wertheim*, 541 F.2d 257, 191 USPQ 90

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(CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Also, “A prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a *prima facie* case of obviousness.”. *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

Regarding claims 2, 4, 5, 7, 9, 10, 13, 17, and 19-22, Spitzer et al. disclose a wide range of carbon, Al, Mn, and Si content to be used in the horizontal casting process. Although the Spitzer et al. reference is not specific with the claimed smaller ranges, it is within the disclosed range of the Spitzer et al reference. In this instance, one of ordinary skill in the art would have recognized the obviousness of the claimed ranges in view of Spitzer et al., as set forth in MPEP 2144.05. “In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists.”. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Also, “A prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a *prima facie* case of obviousness.”. *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05. Also, it would have been obvious to one of ordinary skill in the art at the time the applicants'

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invention was made to find an optimum range through routine experimentation via process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Regarding claims 3, 6, 8, 11, 12, and 14-16, Spitzer et al. do not specifically disclose the contents of Cr and hydrogen in the steel. However, it would have been obvious to one of ordinary skill in the art to have these ranges of trace elements present in the cast steel product, since Spitzer et al. have found a workable range. As a result, one of ordinary skill in the art would have determined optimal ranges based on routine experimentation, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Regarding claims 23 and 25, Spitzer et al. do not specifically disclose deformation of the strip between 50-70%. However, Spitzer et al. disclose thinning (reduction) of the strip to reduce size of the final cast product. Therefore, deforming to 50-70% would have been obvious to one of ordinary skill in the art, since this would depend on design expediency. Also, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Spitzer et al. do not specifically disclose that the method of independent claim 24 further includes the step of conditioning a top side of the conveyor band of the

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horizontal casting device to cool all surface elements of the solidifying shell of a melt substantially equally across the width of the conveyor band.

However, Sivilotti et al. disclose a belt-cooling and guiding means for use in a process of horizontal continuous belt casting of metal strip (abstract; column 2, lines 38-67; column 3, lines 1-26; column 4, lines 1-10; column 5, lines 4-13 and 49-65; column 6, lines 39-67; column 7, lines 1-67; and Figures 1-3), in which the process includes the steps of providing a belt casting machine 10 (Figure 1) having heat-conducting casting belts 12 associated with continuous coolant slots 31 (Figure 2) in the support surfaces arranged transversely and substantially completely across one or both casting belts 12 (conveyor bands) to cause a uniform thickness and velocity of coolant flow, thus allowing for even cooling of the belts 12 in regions such as those adjacent the molten metal delivery region 15 and as the metal strip forms a solidifying shell around the melt (Figure 1). Although the coolant area is directed below the casting belts 12, the top side of the casting belts 12 (conveyor bands) would be “conditioned” by coolant (when compared to the state of the conveyor bands in the absence of coolant), since the belts 12 are heat-conducting (column 5, lines 51-59). Moreover, Sivilotti et al. optionally provide a liquid belt dressing (column 5, lines 4-7) to the casting surfaces (adjacent the top side of the conveyor band 12) for “conditioning” the top side of the belts 12 to assist in further cooling the surfaces of the melt forming a solidifying shell when casting alloys in thin sections and having a long freezing range along the casting belt (column 5, lines 10-13). These features are advantageous for avoiding the formation of internal and/or

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surface defects in the cast article that would be caused by lack of uniform cooling (abstract; column 2, lines 21-55; and column 5, lines 10-13).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method of making a hot strip in a direct strip casting (DSC) apparatus via horizontal casting to obtain a pre-strip with a cast thickness of between 6-15 mm, as disclosed/suggested by Spitzer et al., by conditioning a top side of the conveyor band of the horizontal casting device to cool all surface elements of the solidifying shell of a melt substantially equally across the width of the conveyor band, as taught by Sivilotti et al., in order to avoid the formation of internal and/or surface defects in the cast article that would be caused by lack of uniform cooling (Sivilotti et al.; abstract; column 2, lines 21-55; and column 5, lines 10-13).

### ***Response to Arguments***

5. The examiner acknowledges the applicants' amendment received by the USPTO on November 6, 2009. The amendments overcome the prior objections to the abstract and claim 22, as well as the prior 35 USC 102(b) rejection of independent claim 24. However, a new objection to claim 24 is raised in above section 1. The applicants have cancelled claim 18. Claims 2-17 and 19-25 are currently under consideration in the application.

6. Applicants' arguments with respect to claims 2-17 and 19-25 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

7. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (571)272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on (571) 272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin P. Kerns  
Primary Examiner  
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/Kevin P. Kerns/  
Primary Examiner, Art Unit 1793  
November 11, 2009